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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,811	02/24/2004	Chung-Jen Chen	H0003820-1628	1184

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EXAMINER	
TURNER, SAMUEL A	

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 02/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

A

Office Action Summary	Application No.	Applicant(s)	
	10/784,811	CHEN ET AL.	
	Examiner	Art Unit	
	Samuel A. Turner	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 February 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/29/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to because figure 2 is informal due to the hand written numerals. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application.

Replacement Drawing Sheets

Drawing changes must be made by presenting replacement sheets which incorporate the desired changes and which comply with 37 CFR 1.84. An explanation of the changes made must be presented either in the drawing amendments section, or remarks, section of the amendment paper. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). A replacement sheet must include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of the amended drawing(s) must not be labeled as "amended." If the changes to the drawing figure(s) are not accepted by the examiner, applicant will be notified of any required corrective action in the next Office action. No further drawing submission will be required, unless applicant is notified.

Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and within the top margin.

Annotated Drawing Sheets

A marked-up copy of any amended drawing figure, including annotations indicating the changes made, may be submitted or required by the examiner. The annotated drawing sheet(s) must be clearly labeled as "Annotated Sheet" and must be presented in the amendment or remarks section that explains the change(s) to the drawings.

Timing of Corrections

Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.85(a). Failure to take corrective action within the set period will result in ABANDONMENT of the application.

If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings MUST be filed within the THREE MONTH shortened statutory period set for reply in the "Notice of Allowability." Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136 for filing the corrected drawings after the mailing of a Notice of Allowability.

Specification

The disclosure is objected to because of the following informalities: paragraph [0001] fails to include the patent number for application number 10/135,245.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12 and 18-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 12, the location of the feedback signal amplifier indefinite in that it is coupled between "a feedback signal" which has no structural location and the input of the phase modulator.

With regard to claim 18, the phrase "if said color noise suppression status is true" is confusing in that the color noise suppression status is either enabled or disabled.

Claim Rejections - 35 USC § 101

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 18-20 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 17-19 of prior U.S. Patent No 6,744,519. This is a double patenting rejection.

18. A method for suppressing color noise in a fiber optic gyroscope, said method comprising the steps of:	17. A method for suppressing dead band error in a fiber optic gyroscope, said method comprising the steps of:
providing a plurality of feedback signals for a loop closure circuit in said fiber optic gyroscope;	providing a plurality of feedback signals for a loop closure circuit in said fiber optic gyroscope;
selectively enabling or disabling a color noise suppression status;	selectively enabling or disabling a dead band suppression status;

adding a phase jump amplitude signal to at least one of said plurality of feedback signals if said color noise suppression status is true, thereby altering said at least one of said plurality of feedback signals, thereby creating an altered feedback signal; and	adding a phase jump amplitude signal to at least one of said plurality of feedback signals if said dead band suppression status is enabled, thereby altering said at least one of said plurality of feedback signals, thereby creating an altered feedback signal; and
providing said altered feedback signal to said loop closure circuit.	providing said altered feedback signal to said loop closure circuit.
19. The method of claim 18, further comprising the steps of:	18. The method of claim 17 further comprising the steps of:
accumulating said plurality of feedback signals to create an accumulated signal; and	accumulating said plurality of feedback signals to create an accumulated signal; and
determining a rate of rotation from said accumulated signal if said color noise suppression status is disabled.	determining a rate of rotation from said accumulated signal if said dead band suppression status is disabled.
20. The method of claim 19, further comprising the step of outputting said rate of rotation to an inertial navigation system.	19. The method of claim 18 further comprising the step of outputting said rate of rotation to an inertial navigation system.

Claim 18 of the instant application and claim 17 of the 6,744,519 patent are identical except for the "color noise suppression status" instead of the –dead band suppression status-. The scope of Claim 18 is identical if the two are equivalent, and applicant has admitted in paragraph [0049] of the specification that they are the same.

Claims 19 and 20 are identical to claims 18 and 19.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-23 of U.S. Patent No. 6,744,519. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the instant application are obvious in view of Patent Number 6,744,519.

Limitation matching table:

Claims from the instant application	Claims from U.S. 6,744,519
1. A fiber optic gyroscope comprising:	1. A fiber optic gyroscope comprising:
a loop closure electronic circuit, said loop closure electronic circuit generating a first phase step signal for determining a rate of rotation;	a loop closure electronic circuit, said loop closure electronic circuit generating a first phase step signal for determining a rate of rotation;
a color noise suppression module coupled to said loop closure electronic circuit, said color noise suppression module	a dead band suppression module coupled to said loop closure electronic circuit, said dead band suppression module

generating a randomized phase jump amplitude signal; and

configured to selectively enable or disable a dead band suppression status and generate a phase jump amplitude signal, if the dead band suppression status is enabled; and

an accumulation point, said accumulation point summing said phase jump amplitude signal and said first phase step signal, thereby creating a feedback signal for said fiber optic gyroscope.

an accumulation point, said accumulation point summing said phase jump amplitude signal and said first phase step signal, thereby creating a feedback signal for said fiber optic gyroscope.

2. The fiber optic gyroscope of claim 1, wherein said phase jump amplitude signal comprises a second phase step.

2. The fiber optic gyroscope of claim 1 wherein said phase jump amplitude signal comprises a second phase step.

3. The fiber optic gyroscope of claim 1, further comprising a data output point for outputting a rate of rotation signal from said fiber optic gyroscope.

3. The fiber optic gyroscope of claim 1 further comprising a data output point for outputting a rate of rotation signal from said fiber optic gyroscope.

4. The fiber optic gyroscope of claim 3, wherein said data output point is coupled to an inertial navigation system

4. The fiber optic gyroscope of claim 3 wherein said data output point is coupled to an inertial navigation system.

5. The fiber optic gyroscope of claim 1, wherein said the color noise suppression module further comprises a bias modulation module, said bias modulation module modulating said feedback signal

5. The fiber optic gyroscope of claim 1 wherein said dead band suppression module further comprises a bias modulation module, said bias modulation module modulating said feedback signal.

6. The fiber optic gyroscope of claim 1, further comprising:

6. The fiber optic gyroscope of claim 1 further comprising:

an analog-to-digital converter, said analog-to-digital converter converting said phase step signal from an analog signal to a digital signal; and

an analog-to-digital converter, said analog-to-digital converter converting said phase step signal from an analog signal to a digital signal; and

a digital-to-analog converter, said digital-to-analog converter converting said feedback signal from a digital signal to an analog signal.

7. The fiber optic gyroscope of claim 1, further comprising at least one amplifier for amplifying at least one of said first phase step signal or said feedback signal.

8. A fiber optic gyroscope with color noise suppression, said fiber optic gyroscope comprising:

an electro-optic crystal phase modulator, said electro-optic crystal modulator generating a modulated signal;

a first phase jump signal added to said modulated signal;

a photo detector coupled to said electro-optic crystal phase modulator, said photo detector detecting said modulated signal;

an amplifier coupled to said photo detector, said amplifier amplifying said modulated signal;

an analog-to-digital converter, said analog-to-digital converter converting said modulated signal to a digital modulated signal;

a phase jump amplitude and timing controller, said phase jump amplitude and timing controller generating a randomized phase jump amplitude signal, said phase jump amplitude signal being combined with said modulated signal to create a feedback signal; and

a digital-to-analog converter, said digital-to-analog converter converting said feedback signal from a digital signal to an analog signal.

7. The fiber optic gyroscope of claim 1 further comprising at least one amplifier for amplifying at least one of said first phase step signal or said feedback signal.

8. A fiber optic gyroscope with dead band suppression, said fiber optic gyroscope comprising:

an electro-optic crystal phase modulator, said electro-optic crystal modulator generating a modulated signal;

a first phase jump signal added to said modulated signal;

a photo detector coupled to said electro-optic crystal phase modulator, said photo detector detecting said modulated signal;

an amplifier coupled to said photo detector, said amplifier amplifying said modulated signal;

an analog-to-digital converter, said analog-to-digital converter converting said modulated signal to a digital modulated signal;

a phase jump amplitude and timing controller, said phase jump amplitude and timing controller configured to selectively enable or disable a dead band suppression status, and generate a phase jump amplitude signal if the dead band suppression status is enabled, said

	phase jump amplitude signal being combined with said modulated signal to create a feedback signal; and
wherein said feedback signal is coupled to an input of said electro-optic crystal phase modulator.	wherein said feedback signal is coupled to an input of said electro-optic crystal phase modulator.
9. The fiber optic gyroscope of claim 8, wherein said phase jump amplitude signal comprises a second phase step.	9. The fiber optic gyroscope of claim 8 wherein said phase jump amplitude signal comprises a second phase step.
10. The fiber optic gyroscope of claim 8, further comprising a data output point for outputting a rate of rotation signal from said fiber optic gyroscope.	10. The fiber optic gyroscope of claim 8 further comprising a data output point for outputting a rate of rotation signal from said fiber optic gyroscope.
11. The fiber optic gyroscope of claim 10, wherein said data output point is coupled to an inertial navigation system.	11. The fiber optic gyroscope of claim 10 wherein said data output point is coupled to an inertial navigation system.
12. The fiber optic gyroscope of claim 10, wherein a feedback signal amplifier is coupled between said feedback signal and said input of said electro-optic crystal phase modulator, said feedback signal amplifier amplifying said feedback signal.	12. The fiber optic gyroscope of claim 8 further comprising a feedback signal amplifier coupled between said phase jump amplitude and timing controller and said input of said electro-optic crystal phase modulator, said feedback signal amplifier amplifying said feedback signal.
13. A method comprising the steps of: creating a plurality of phase steps for determining a rate of rotation signal in a fiber optic gyroscope;	13. A method comprising the steps of: creating a plurality of phase steps for determining a rate of rotation signal in a fiber optic gyroscope;
accumulating said plurality of phase steps to create an accumulated phase step signal;	accumulating said plurality of phase steps to create an accumulated phase step signal;
	selectively enabling or disabling a dead band suppression status;

creating a randomized phase jump amplitude signal for enabling color noise suppression; and	creating a phase jump amplitude signal for enabling dead band suppression, if the dead band suppression status is enabled; and
summing said phase jump amplitude signal with said accumulated phase step signal to create a feedback signal for said fiber optic gyroscope.	summing said phase jump amplitude signal with said accumulated phase step signal to create a feedback signal for said fiber optic gyroscope.
14. The method of claim 13, further comprising the step of supplying said feedback signal to a feedback loop, said feedback loop being connected to said fiber optic gyroscope.	14. The method of claim 13 further comprising the step of supplying said feedback signal to a feedback loop, said feedback loop being connected to said fiber optic gyroscope.
15. The method of claim 13, further comprising the step of selectively enabling or disabling color noise suppression.	See claim 13 above
16. The method of claim 15, further comprising the step of skipping at least one signal sample if said color noise suppression is enabled.	15. The method of claim 13 further comprising the step of skipping at least one signal sample if said dead band suppression status is enabled.
17. The method of claim 15, further comprising the step of outputting said rate of rotation signal if said color noise suppression is disabled.	16. The method of claim 13 further comprising the step of outputting said rate of rotation signal if said dead band suppression status is disabled.

With regard to claims 1, 8, and 13, the only differences between the limitation to the "color noise suppression module" of claim 1, 8, and 13 and the "dead band suppression module" found in claims 1, 8, and 13 of the 6,744,519 patent are:

a) the phase jump amplitude signal generated by the color noise suppression module is randomized where the dead band suppression module simply generates the phase jump amplitude signal, and

b) the dead band suppression module only generates a phase jump amplitude signal if the dead band suppression status is enabled where the color noise suppression module is not limited by any color noise suppression status.

As to difference (a), the phase jump amplitude signal generated by the dead band suppression module is broader in scope than the randomized phase jump amplitude signal generated by the color noise suppression module thus anticipates the limitation.

As to difference (b), the color noise suppression module is not limited to when the phase jump amplitude signal which would include any status for the module including the "enabled status of claim 1 of the 6,744,519 patent.

Further regarding claim 13 of the instant application, claim 15 of the instant application includes the "step of selectively enabling or disabling" found in claim 13 of the 6,744,519 patent.

Claims 2 –7, 10, 11, and 14 are identical.

With regard to claim 12: the feedback signal amplifier appears to be located in the same position as claim 12 of the 6,744,519 patent, before the input to the phase modulator.

Claims 16 and 17 are identical to claims 15 and 16 of the 6,744,519 patent.

Relevant Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Tazartes et al(6,473,182) see figure 1 and Strandjord et al(6,765,678).

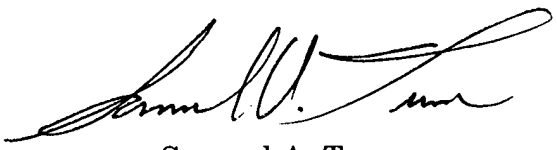
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel A. Turner whose phone number is 571-272-2432.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached on 571-272-2800 ext. 77.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see **http://pair-direct.uspto.gov**. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Samuel A. Turner
Primary Examiner
Art Unit 2877